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Indian Standard

METHODS OF TEST FOR COATED AND TREATED FABRICS

PART 11 DETERMINATION OF FLEXIBILITY-FLAT LOOP METHOD

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METHODS OF TEST FOR COATED AND TREATED FABRICS

PART 11 DETERMINATION OF FLEXIBILITY-FLAT LOOP METHOD

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Indian Standard

METHODS OF TEST FOR COATED AND TREATED FABRICS

PART 11 DETERMINATION OF FLEXIBILITY-FLAT LOOP METHOD

0. FOREWORD

0.1 This Indian Standard (Part 11) was adopted by the Indian Standards Institution on 31 March 1987 after the draft finalized by the Treated Fabrics Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

0.2 Flat loop method provides useful information about the flexibility of treated fabrics. The height of the loop is an inverse measure of the flexibility.

0.3 Flat loop method is applicable to treated fabrics which are not too rigid to form a loop. The method may be carried out on the coated fabrics as delivered or which have undergone certain specified treatments.

0.4 This standard is essentially based on ISO 5979-1982 'Rubber or plastic coated fabrics — Determination of flexibility — Flat loop method', issued by the International Organization for Standardization.

0.5 In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS : 2-1960*.

1. SCOPE

1.1 This standard (Part 11) specifies a method of characterizing the flexibility of some rubber or plastics coated fabrics.

1.2 The method is not applicable to coated fabrics which are prone to rolling up or spiralling when they are cut into pieces of small dimensions, nor is it applicable when the coated fabric is too rigid to make a loop.

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*Rules for rounding off numerical values (*revised*).

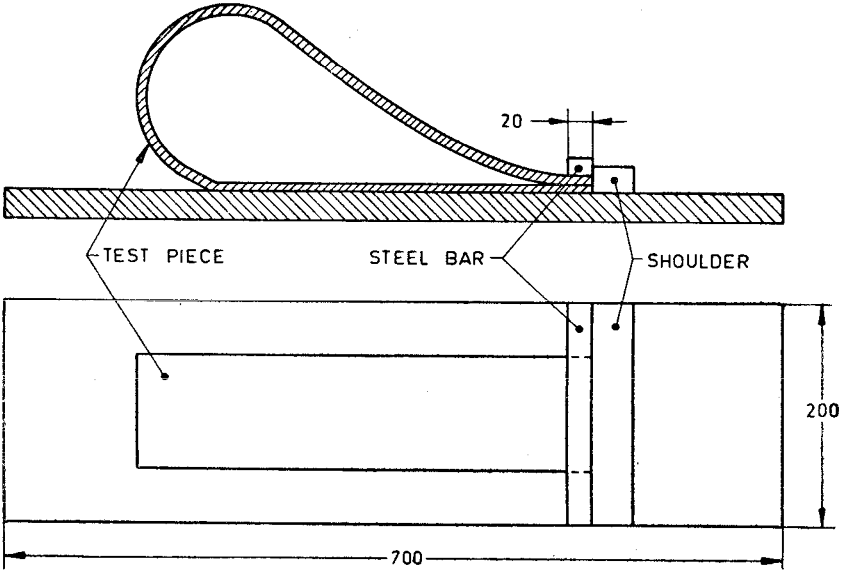
2. PRINCIPLE

2.1 A loop is formed from a rectangular strip of coated fabrics, placed on a horizontal plane, by superposing the two ends which are then held together under a steel bar. The height of the loop is measured. The flexibility is characterized by the height of the loop; this is an inverse measure and the lower the loop height the greater is the flexibility.

3. APPARATUS

3.1 Flat Rectangular Board — The board is equipped near one of its ends with a shoulder having its face perpendicular to the board.

NOTE — The dimensions shown in the Fig. 1 are given as an example; they may be increased to permit the installation of several test pieces on the same board.



All dimension in millimetres.

FIG. 1 APPARATUS FOR FLEXIBILITY DETERMINATION

3.2 Steel Bar — of stainless or non-corrosive steel, having a length of 200 mm and a square section of 20 mm side.

3.3 Rule — Graduated in millimetres.

4. TEST PIECES

4.1 Shape and Dimensions — The test piece shall have the shape of a rectangle, 600 mm long and 100 mm wide.

4.2 Number — Use three test pieces cut in the longitudinal direction and three test pieces cut in the transverse direction.

4.3 Sampling — The test pieces shall be taken so that their outside edges are at a minimum distance of 100 mm from the edges of the coated part. They shall not be taken at a distance less than 1 000 mm from the ends of the coated part or at a location having a fold or an apparent defect.

5. TIME INTERVAL BETWEEN MANUFACTURING AND TESTING

5.1 For all purposes, the minimum time between manufacturing and testing shall be 16 h.

5.2 For non-product tests, the maximum time between manufacturing and testing shall be 4 weeks and for evaluations intended to be comparable, the tests, as far as possible, should be carried out after the same time interval.

5.3 For product tests, whenever possible, the time between manufacturing and testing should not exceed 3 months. In other cases, tests shall be made within 2 months of the date of receipt by the customer.

6. CONDITIONING OF TEST PIECES

6.1 The test pieces shall be conditioned at 27 ± 2°C and 65 ± 5 percent relative humidity for at least 24 h prior to testing. To avoid any deformation of the test pieces, they shall be placed, during conditioning, on a horizontal surface, the face that is to form the outside of the loop being turned upward.

NOTE — Different results may be obtained for different conditioning atmosphere.

7. PROCEDURE

7.1 Powder the surface of the board evenly with zinc stearate or French chalk. Holding the ends of the test piece between the fingers, place it on the board so that one side rests on the board and one end is against the shoulder (the choice of the side depends on the use of the product; it may be subject to agreement between the purchaser and the supplier; the test may also be repeated after having reversed the test piece side for side).

7.2 Bring the other end onto the first end (so as to form a loop), pressing it also against the shoulder. Place the steel bar on the superimposed ends. Keep the test piece in this position for 5 minutes.

7.3 Measure, with the rule, the maximum heights of the two edges of the loop for each of the test pieces with respect to the board.

8. EXPRESSION OF RESULTS

8.1 For each of the two directions there are three test pieces.

8.2 For each test piece cut in the longitudinal direction, express in millimetres the maximum height of each of the two edges of the loop formed Take the arithmetic mean of the six values obtained as the result for the longitudinal direction.

8.3 Repeat the procedure described in **8.2** for test pieces cut in the transverse direction.

9. TEST REPORT

9.1 The test report shall include the following information:

- a) indication or reference to the side(s) on which the results have been obtained,
- b) each individual value obtained,
- c) the arithmetic mean of the results for each test piece,
  - i) for test pieces cut in the longitudinal direction,
  - ii) for the test pieces cut in the transverse direction,
- d) the condition of the test piece subjected to testing, and
- e) whether the test was conducted on coated fabric as delivered or after it had undergone specified treatments (give details).

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Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.S
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s(s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2